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Returning to the earth

by

Daniel Morley

A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
MASTER OF SCIENCE

Major: Architecture

Program of Study Committee:

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The student author, whose presentation of the scholarship herein was approved by the program of study committee, is solely responsible for the content of this thesis. The Graduate College will ensure this thesis is globally accessible and will not permit alterations after a degree is conferred.

Iowa State University

Ames, Iowa

2020

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ABSTRACT

Life is another form of death. Together, they form an eternal cycle but for a majority of the past century, life and death have been seen as opposites and many have chosen to ignore the topic of death. In our unwillingness to address the topic, the Western burial practice that emerged out of the late 19th and early 20th centuries remained unquestioned for decades. It was not until recent years, with closer examination, Westerners began to realise some of these practices are environmentally unfavourable. For this and other reasons, many people have begun searching for alternative burial methods. This paper serves as a search for an alternative burial method. This research is centred on the Ouroboros, the eternal cycle of life and death and humans place within that cycle.

CHAPTER 1: INTRODUCTION

“Life asked death, ‘Why do people love me but hate you?’ Death responded ‘Because you are a beautiful lie and I am a painful truth. And then Life asked Death “Why do people constantly personify us?” to which Death responded “Because it makes esoteric and frightening ideas easier to deal with.”¹ Physical death is the inevitable fate of all living beings. It is one of two absolutes that all living things must face. The other being death’s predecessor, conception.

Although death is certain, and its rituals have existed for centuries, there has been a shift in thought regarding the topic. In recent years, many in the modern west choose to avoid the topic until it becomes imminent. What caused this shift? The shift, could be a result of the separation of the living and the dead. Prior to industrialization it was the family’s job to take care of and dispose of the body. However, as a part of industrialization the public became busier and families sought assistance in disposing of the dead, which lead to the creation of the funeral industry. Prior to and throughout the 20th century, death was viewed as sudden and could happen at any time; but with medical advancements this view changed and death was no longer seen as a natural occurrence but a problem that needed a solution. Death became associated with the elderly and the young feared that they may have an early encounter. This led to any fear of death being handed over to medical professionals whose purpose is to maintain life.

With the emergence of the funeral industry, families no longer had to think about caring for or disposing their dead in great detail and could distance themselves from death. With death no longer seen as a natural occurrence but a solvable problem it became easier to ignore. The combination of these two factors is where this phenomenon takes roots. As, people no longer wish to think about death the funeral industry has remained unchecked and unquestioned and shrouded in mystery for decades. This mystery and ignorance has been

used by the industry to amass a fortune, states Jessica Mitford a long-time critic of the industry.² However, the problem of ethics is not the only issue to come with the rise of the funeral industry. Problems also arise when examining the western traditional burial method (embalmed body within a casket placed in a burial vault which is then placed into the earth). The most obvious being land space, as we will eventually run out space as corpses are intended to remain in place for eternity. This process is resource intensive with little to no proven added benefit as well as using embalming fluids which contain up to 35% formaldehyde, a known hazardous chemical.

Recently, people have become more aware of the issues related to western traditional burial and have been seek alternatives. The majority of these alternatives utilize one or more of the following methods: 1) natural burial, the placement of an unaltered corpse directly into the earth which is allowed to decay naturally; 2) cremation, the combustion of a corpse; 3) legislation; and 4) architecture. In China, legislation was used to make cremation mandatory. In Japan, cremation was not mandatory but widely used and high—rise projects such as the Shinjuku Ruriko-in Byakurenge-do are being used to house the ashes. In South Korea, legislation was passed in 2000 that required anyone buried after that year be dug up 60 years later. As a result, many began cremating there dead and the ashes were condensed to form ‘death beads’. In Australia, there was a similar law called the ‘rent a grave law’ which allowed families to rent a grave plot for 25-99 years to bury loved ones, but this is done often for cost related issues.

The purpose of this research is to propose an alternative solution to traditional burial of the west using architecture operating at the intersection of religion, culture, and ecology. The following questions are addressed in this research paper: What is the purpose of the death and funerary ritual? Why do we bury the dead? What does it mean to bury? What led to

the traditional Western funeral as it is known? What are the existing alternatives? Finally, through a creative component, how can architecture be used to replace the graveyard?

The following proposal addresses the beliefs and practices of various religions and cultures, and it is not intended to be universal or all-inclusive. Ultimately, it is based on a perception of life and death rooted in Christian faith and responds to burial in terms of traditional Western burial as a right. This research was compiled with the assumption that there is a lack of concrete Christian burial practices. When coming to the Americas, most groups held onto and still practiced the burial practices of their countries of origin which can still be seen in practice today. This research is based on the idea that as Christianity had no set rule governing burial rituals, it changed easily. Currently, most who practice the traditional Western burial also claim Christianity; therefore, this research does not refer to all alternative methods and practices of burial (such as Sky Burial or Burial Tree). The method proposed in this paper still retains parts of traditional Western burial ritual to allow for an easier transition.

CHAPTER 2: THE BURIAL AND FUNERAL RITUAL- WHY DO WE BURY?

The Ritual

In *A Literature Review of the Development, Purposes, and Religious Variations of the Funeral Ritual*, Codi Leigh Smith defines ritual as “a device created by a culture that serves to preserve social order and provide a means of understanding during complicated times.”³ A ritual’s performance is carried out with precision and literalism which allows it to be done similarly across a society. This repetition is done to hold focus and serve as a medium to communicate an unspoken message, such as family values. Rituals may not always be used to obtain a goal but are performed for a purpose. Smith states that “rituals are performed for the purpose of aiding individuals in coping with a change while minimizing the disruption of their life.”⁴ Because rituals are meant to minimize life disruption they are normally short and powerful tools to invite and direct individuals’ attention from the every day. These powerful tools are normally symbols as symbolic ritual promotes cohesion which fosters social belonging. “Rituals are structures that foster structures that transfer a sense of continuity of experience from past to the present” and are “a vessel in time by which we remember what’s important to us...Rituals are able to cue memories that help individuals maintain both values and standard of social groups”.⁵

The burial and funeral ritual play a major role in society. Due to the importance of ritual, Smith states “one of the key elements to a society’s survival is its willingness to perform rituals that connect the living to the dead.”⁶ The ritual connects the present to the past by transferring values from generation to generation reminding participants what is important.

The funeral serves as a means to dispose of the body, provides a means of understanding, makes social change, memorializes the dead, and expresses deep emotions

and beliefs through literal and symbolic actions. Most of these purposes are universal; however, reasons for burial and funeral rituals vary amongst groups.

Burial in History

Historically, many tribal cultures maintained a bond with the dead and believed that the dead received supernatural powers upon their death. For this reason, many groups felt the need to show respect to the dead, for “In the eyes of the living, the dead who were not properly cared for were both dangerous and vulnerable.”⁶ Although the purpose of the funeral was to guide the deceased soul into the afterlife, which is a common goal for a large majority social groups, tribal cultures performed the act out of fear not grief or hope.⁷ Author Robert Harrison in *The Dominion of the Dead* states that nomadic tribal groups may have also used burial sites as a means of place marking, to know where to return during their migration cycles.⁸ Historically, claim to land was based on prior occupation and burying the dead in a location could claim the place for a group of people.

The Ancient Egyptians buried the dead for the sole purpose of insuring immortal life after death. Unlike other civilizations, the Ancient Egyptians strongly believed that the body’s preservation was crucial in entering the afterlife. After death the body was mummified immediately, then released to the family in a wooden container. The container was then carried to a tomb located west of the Nile River by a procession of family, friends, and other mourners. Once at the tomb the body was placed in a pit-like grave and covered with earth to protect the body. Following the burial, the eldest son placed cakes and other foods beside the grave to provide nourishment to sustain the deceased in the afterlife. Upon death it was believed that once the body was unified with the *ka* (ones personality) and *ba* (one’s life force) they could move on to the afterlife. It is believed that the *ka* and *ba* did not return to the body right away so the body was preserved to remain intact for their return.⁷

The Ancient Roman burial, unlike the Ancient Egyptian, did not focus heavily on the preservation of the body, as “individuals sought to immortalize the dead through the use of memory...[but] it was not the dead that one hoped would be remembered, but the living associated with them”⁹. Desire to be remembered was so great that it was common that individuals created and decorated their own graves. The body of the dead was not of great importance, as the image of the living person was what mattered. Although the funeral was used as a means of assuring the soul could find peace and the ritual showed spiritual and emotional aspects, its main purpose was to express social status and display of family connections. Ancient Roman burial customs stated that graveyards were to be placed outside of the settlement, but persons who society deemed honourable or belonged to a higher class could be buried inside the town.⁷

Like the Ancient Romans, the Ancient Greek also sought to memorialize the dead through memory, however it was the responsibility of the family and not the individual ahead of their death. Like the Ancient Romans, they believed that in order for the soul to find peace the body had to be given a proper burial. After death, the body was washed, anointed, and placed on a high table in the home of the deceased. While the body was on the table, the community mourned and payed their respects to the deceased. Following this, the funeral procession and burial took place. For the Greeks, the funeral was a time to express emotion and respect for the dead.⁷ Denial of burial rites was seen as an insult to the dead’s dignity.

Religion and Burial

Burial is not always dictated by culture group. The world’s religions each have their own specific reasons for burial. The Islamic faith believes that upon death the soul is exposed to God and is vulnerable and therefore must be buried. If the soul is not buried then it cannot find eternal rest. Along with laying the body to rest, the funeral is a public display of Islamic beliefs that allows one to mourn and a practice for the living to assure eternal life upon their

death. One's readiness to fully participate in religious ritual largely determines if one is sent to Paradise (heaven) or Gehenna (hell).⁷

Buddhists believe that the ultimate goal of life is to obtain nirvana, (the highest state of peace through enlightenment) and that a cycle of life and resurrection occurs until nirvana is obtained. One's life and resurrection depends one's karma (add short definition of karma here). Upon death it is believed that the soul does not leave the body immediately so the body must not be touched and allowed to rest. After the resting period, the body is washed and dressed in normal clothes and prepared for burial or cremation. Although burial is allowed, most Buddhists are cremated because Buddha himself was cremated. Buddhist funerary rituals are primarily performed to aid the deceased in transitioning to the next life in successful reincarnation while generating good karma for those involved.⁷

Jews believe that the earth is the source of all physical life as God's essence resides within it, thus the next stage in life is to return the earth. They also believe that interment in the earth is necessary for the process of *techiat ha-meitim* (the future resurrection of the dead) where the new body is made from the earth in which the body is buried. The Jewish funeral ritual consist of three major parts; the *Taharah* (purification), *Levagah* (accompaniment), and burial. The ritual focuses on providing comfort to the deceased soul as it transfers from one life to the next and to prepare the deceased for resurrection.⁷

Hindus believe that the soul is inherently pure and that it is imprisoned within the body which is prone to desire and attachments keeping it bound to the mortal world; thus keeping the body away from the source (*mukti*). Individuals are born live and die multiple times until the soul is perfected and can reunite with its source. Because of this view of the soul, little value is placed on the body itself and cremation is used to help sever ties of the soul to the body; freeing it to move towards *mukti*.⁸

The Christian burial ritual differs from that of other religious groups. It is different in the sense that Christianity has no set funerary practice but can adapt to fit the location of death. Due to this lack of consistency, funeral rituals have changed over time. Smith states that “Christian funerals are evolving in such a way that religious beliefs have little to no effect on how the ritual is performed or how the body is disposed of.”⁹ The focus has moved from commemorating the dead according to their Christian beliefs to satisfying the living.⁷

The Link Between the Living and The Dead

In *The Dominion of the Dead*, Robert Harrison investigates why people bury the dead but in a different way than Smith. Harrison focuses on the matter in terms of the following questions: Where do the dead reside? What is the connection between the living and the dead? Harrison gives three main reasons that people bury the dead and how they stay connected to them.

Harrison states that the dead do not only reside within the space where they are buried but also in laws, words, images, dreams, rituals, monuments, memory, and literature.¹⁰ When looking at where the dead reside in society’s subconscious, Harrison argues that the living build the present on the foundations laid by the dead. Harrison also states that “basic human institutions rely on the transmission of legacy and are authorized always by those who came before”¹¹ and it is through this that “only the dead can grant us legitimacy.”¹¹ When people bury the dead they not only lay the body to rest in the ground but also “store, preserve, and put the past on hold.”¹¹ By viewing burial in this sense, the earth conserves what has come to

pass. “We move forward into the future only by retrieving the past”¹¹ and by burring the dead “we co-sign the future of our legacies.”¹¹

Secondly, Harrison states that we often refer to the human species as ‘humanity’ but humanity is not a species. When saying this Harrison is referring to taxonomic hierarchy (the global biological classification system used since the 18th century).

The hierarchy is as follows from bottom to top:

species, genus, family, order, class, phylum,

kingdom, and domain (Figure 1). Humanity is not a

species or any other category higher up in the system. Per Harrison humanity “is a way of being mortal and relating to the dead.”¹¹ Humanity comes from latin word *humanitas*,

meaning human nature, civilization, and kindness. *Humanitas* is derived from the latin word *humando*, to bury. “To be human means above all to bury.”¹¹ Humans bury the dead, as to be

human is to be of the humus. To be alive is just another form of being dead. “All solid bodies in the universe is a species of what is dead... it’s heavy elements were formed by the death of stars... whatever biomass it receives after the extinction of life becomes part of the planet’s receiving matter- matter from which life... in turn emerges.”¹² As life turns to death, death becomes life, and a continuous loop is formed. People bury to play a role in this cycle, by returning the deceased to the earth the cycle continues.

The third reason Harrison gives as to why people bury the dead is that “the grave domesticates the inhuman transcendence of space and marks human time off from the timelessness of the gods and the eternal returns of nature.”¹³ By burying the dead people can mark their own morality. Human death must be understood not in biological terms but as an innate end that claims existence before claiming lives. The grave is a constant reminder to

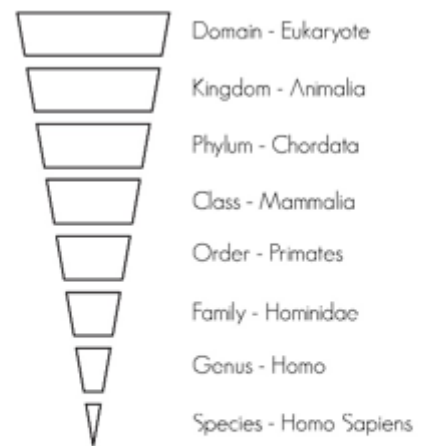


Figure 1. Human Taxonomic Hierarchy

humans of the end. In the human sense, a human can perish but not die. Death is marked when the body is disposed of ceremonially. It is in this time that the dead are “detached from their remains so that their images may find their place in the afterlife of the imagination.”¹⁴ This allows the living to detach themselves from the dead. We bury the dead so that we may move on.

CHAPTER 3: THE TRADITIONAL FUNERAL OF THE WEST

The traditional funeral is conducted as follows: Upon death, the body is relinquished to a funeral home, where it is cleaned, embalmed, dressed, and prepared for a viewing. After the viewing, the funeral service is held and the body is buried, typically in a coffin that is placed within a burial vault either above or beneath the earth (Figure 2).

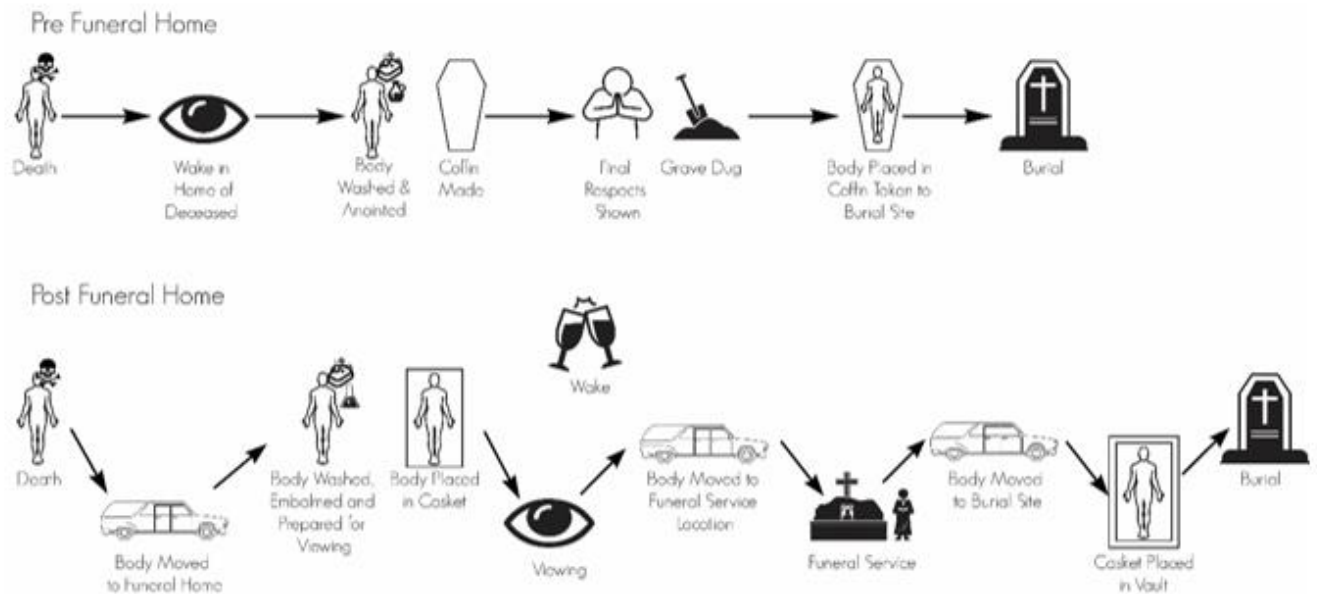


Figure 2. Western Burial Process Pre/Post Funeral Home

Burial practices of the modern West also have no set ritual and is subject to continuous evolution. Western burial is a product of Christian burial practices (or lack thereof) as all other religious groups that migrated to the Americas had set burial practices, most of which are still in practice today. Typically, local church leaders were involved in Western burials.

In early 19th century America it was the responsibility of the family of the deceased to take care of the body and perform the funeral ritual. This was done in response to death and communicated family grief, loss, and hope. This included conducting a wake (watching the body over a period of time to insure the person was indeed dead) and washing/anointing of the body, while a local carpenter made the coffin and a church leader dug the grave.⁷ During

this time funerary rituals of Christian and the West were done quickly (as Jewish, Islam, Hindu and Buddhist faiths). If a person died in the morning, they would most likely be buried that evening.

However, later in the 19th century, this began to change. Smith states that “coffins began to be referred to as caskets, and the dead were referred to as the deceased and the role of the family changed as the role of an undertaker evolved.”¹⁵ As America became more industrialized and its population grew, families required help disposing and honouring the dead, resulting in the emergence of a funeral industry. Families no longer used their home for the funerary process and began to use funeral homes. Due to this the attention that was once focused on the dead shifted to the mourner. Smith states that “the loss that the bereaved felt led individuals to memorialize the dead in order to outwardly express their inner grief. Such memorials were more than burring the dead in cemeteries, like the romans; they included greater symbols of remembrance such as gravestones, epitaphs and a range of mourning paraphernalia.(sic)”¹⁵ Because the deceased’s family was no longer in charge of caring for the body and the funeral, the emotions of the process needed a new outlet.

Due to shift in the handling of the corpse, a rift was formed between the living and the dead. To further this rift, advancements in the medical field changed people’s collective perceptions of death. It was no longer seen as something that could happen at any moment but rather a problem that could be solved (via medical intervention). As a result of this, death became associated with the elderly and feared by the young. Out of fear many choose to ignore the topic. It is this un-willingness to address the topic that the problems of the traditional funeral stem.

In *The American Way of Death Revisited*, *Embalming Mr. Jones*, and *Behind the Formaldehyde Curtain* author Jessica Mitford discusses the issues raised by traditional burial conducted today. Mitford states that

“a new mythology, essential to the twentieth century American funeral rite, has grown up or rather has been built up step by step to justify the particular customs surrounding the disposal of our dead. And just as the witch doctor must be convinced of his own infallibility in order to maintain a hold over his clientele, so the funeral industry has had to ‘sell itself’ on its articles of faith in the course of passing them along to the public.”¹⁶

Mitford argues, the funeral industry is unethical and built on three major myths. The first being the funeral procedures are founded in “American Tradition” but they actually came about in the late 19th to early 20th centuries and were started by the funeral industry as a means to build profits. The second is that the American public is being provided a demanded service, a high standard of dying to match a high standard of living; however, high standards of dying are only being consumed because the funeral industry has convinced people it is a standard. The third is an assortment of myths involving the idea of the ‘memory picture’ and ‘grief therapy’ but no data indicates that either of these concepts help in the mourning process.² The memory picture is defined as the beautification of the corpse so that we have a final image to remember the individual. Grief therapy is therapy for individuals experiencing serious grief reactions. Mitford also addresses the issue of the funeral transaction which is a mixture of the following circumstances;

- 1) “The funeral seller, like any other merchant, is preoccupied with price, profit, selling techniques”.¹⁷ The goal of the funeral business is that of all businesses to make money and as any other, makes it by selling goods and/or services, the more sold the more profit.
- 2) “The buyer’s almost total ignorance of what to expect when he enters the undertaker’s parlour.... Because of the nature of funerals, the buyer is in a quite different position from the one who is, for example, in the market for a car....The Funeral buyer is

generally not in the mood to compare prices”.¹⁷ Funeral sellers uses the bereaved nature of the clientele to their advantage in order to sell their goods and services.

- 3) The buyer is in a position to make an on-the-spot decision. “Impulse buying, which should, he knows be avoided in everyday life, is here built in necessity.”¹⁸
- 4) The general population has little to no knowledge of the law and process as it pertains to the disposal of the dead. Services sold by funeral professionals such as embalming are not required by any state law. Many who buy the service are “blissfully ignorant of what it’s all about.”¹⁸

Mitford states “on the one side is generally a person greatly agitated or over whelmed by vain regrets or deep sorrow, and on the other side persons whose business it is to minister to the dead for profit. One side is, therefore, often unbusiness like, vague and forgetful, while the other is ordinarily alert, knowing and careful.”¹⁹

As the avoidance of ideas of death have been engrained in societies subcouncious, the funerary industry has remained unchecked and unquestioned for decades. The funeral industry has remained shrouded in mystery for much of the past century and many “pay hundreds of millions of dollars for its perpetuation, blissfully ignorant of what it is all about, what is done, how it is done”²⁰. This mystery and ignorance has been used by the industry to amass a fortune.

Along with other practices, the services of the burial vault and embalming have come to be seen as problematic. Land allocation and increasingly elaborate caskets are yet other goods or services that have been deemed problematic.

The Burial Vault

The Christian faith permits the use of a burial vault and it is primarily only used in Western countries with few places requiring them by law. The burial vault is a lined and sealed outer container which houses the coffin in the ground. Burial vaults were initially made and used to ensure that grave robbers could not steal from corpses but it was not until the 1880s that they started to become popular in use. The burial vault can serve as a means to prevent the earth from settling over the grave while protecting the coffin from the weight of the earth and heavy maintenance equipment. The

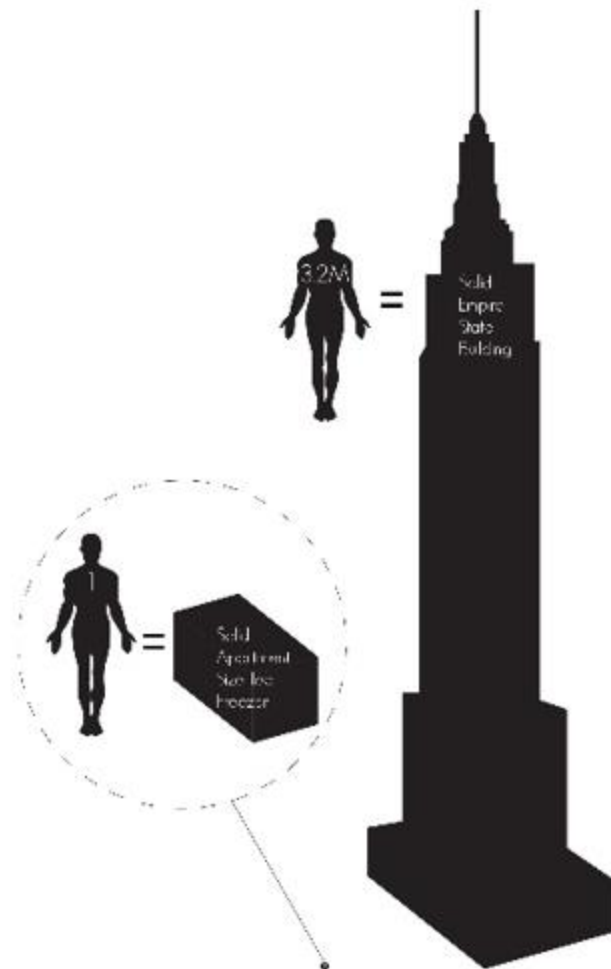


Figure 3. Concrete Use

decision to use a burial vault requires a larger grave which can cause more settling once the whole is filled. The smaller the initial grave the less settling that occurs; hence negating the burial vault. The vault is also meant to keep the embalming fluid from leeching into the earth (though there is evidence to show this is not the case). In the 1880s L.G Haase Manufacturing Co. attempted to reintroduce the burial vault to the market. This was done as a means to generate profit from funeral sales as the company owned a cemetery in Illinois. By promoting the vault the company not only increased revenue from sales but also from the service fee of installing them into a cemetery they owned. In the 1930s, to further increase sales the

company sold the idea that the body needed to be protected from water, microbes, and vermin once put into the ground. As of today L.G. Haas controls 12% of vault sales.²¹

Using burial vaults to contain embalming fluids is a questionable practice as the embalming fluids do not prevent the body from decaying, releasing gases that build up in the air tight environment of the burial vault, which then ruptures, allowing embalming fluids to escape. To avoid rupture, the vault cannot be air tight which gives the embalming fluids a means seepage. The burial vaults fail to accomplish one of the two things they are purposed for. Christians, as Jews and Muslims, bury the body in the earth because they believe that God's essence is within the land and the body must be returned from whence it came; therefore, adding the obstacle of a burial vault appears contrary to purpose.

Additionally, burial vaults are resource-demanding. Currently, vaults are made of 5000 psi reinforced concrete which is combined with bronze, copper, stainless steel, and/or high impact plastics. For example, the smallest burial liner (burial vaults without the bottom) available by the Markham Burial Vault service requires 11.61cu.ft of reinforced concrete to create¹. This amount of concrete can add up quickly and when the burial vault is examined to be largely obsolete this use of resources is wasteful. To illustrate, the Empire State Building has a volume of 37 million cubic feet. If roughly 3.2 million people (roughly 38% of New York City's population) is buried using this liner (the smallest) would equal an Empire State Building made of solid concrete (Figure 3).

Embalming

Embalming is the art and science of preserving the remains of animals/humans by slowing down decomposition. This is generally done to make the deceased presentable for viewing as a part of funeral rituals and to allow greater time periods between death and

¹ The outer dimensions of the liner are 74.75 in x 28.5 in x 28.25 in and the inner dimensions are 70.5 in x 24 in x 24.75 in. By subtracting the dimensions, the thickness is calculated which is used to determine volume.

burial. The process was developed to the by the Ancient Egyptian's who believed that the preservation of the body was needed as the soul would return to it after resurrection.

Embalming became popular for as people wanted extra time to prepare the funeral and the process allowed longer visitations to pay final respects. Mitford argues that the sentimental value of viewing the body has been pushed by the funeral industry²² however, no studies have been done to confirm this. Many religious groups and countries do not embalm their dead.

Mitford also argues that many pay for embalming services but do not know what the process entails.²² The process, as described by Mitford, can be seen as violent; the body is "sprayed, sliced, pierced, pickled, trussed, creamed, waxed, painted, rouged and neatly dressed... transformed from a common corpse into a Beautiful Memory Picture."¹⁷ The process consists of four steps:

1. Arterial embalming - the draining of blood vessels and filling them with embalming fluids
2. Cavity treatment - the removal of internal body fluids in cavities via an aspirator and trocar
3. Hypodermic embalming - the injection of embalming fluids into tissue with hypodermic needle
4. Surface embalming - chemical treatment to preserve and restore areas directly on the skin.

There are laws in place that only allow the embalmers and apprentices into preparation rooms which leaves the process out of sight of the public. Mitford believes if people knew what happened to their loved ones they would choose not to have embalming services (where it is not required by law).²²

Embalming fluids are a mixture of formaldehyde, glutaraldehyde, methanol, humectants, wetting agents, and other solvents. One of the main ingredients, formaldehyde,

can make up to 35% of the mixture. Formaldehyde is on the EPA's (environmental protection agency) list of the top 10 most hazardous chemicals.²³

According to TURI (Toxic Use Reduction Institute), formaldehyde is a naturally occurring substance, but in high concentrations it can be problematic, as it is a highly reactive substance that is water soluble and metabolises rapidly. Short term effects of the chemical include throat, eye, nose, and skin irritation or burning, and narrowing of the bronchi which causes coughing, wheezing, chest pains, and bronchitis at low levels of exposure. High levels of exposure can also result in fluid build-up in the lungs, which can lead to death.²³

In 2006, the IARC (International Agency for Research on Cancer) changed the classification of formaldehyde from *probable human carcinogen* (Group 2a) to *carcinogenic to humans* (Group 1). There is evidence that direct contact or inhalation of the chemical can cause nasopharyngeal cancer or leukaemia. There is also, limited evidence linking formaldehyde with sinonasal cancer. Studies by IARC have also shown that prolonged exposure to formaldehyde to cause spontaneous abortions, congenital malformations, low birth weights, infertility and endometriosis.²³ Human exposure to formaldehyde has some definite safety concerns; however, according to the IPCS (International Programme on Chemical Safety), formaldehyde does not pose a threat in soil unless in 'massive discharge'.²⁴ Therefore, there is little evidence that placing thousands of embalmed bodies in the ground in a single location such as a cemetery is safe.

The Coffin and the Casket

The earliest use of coffins is believed to be in Beishouling Shaanxi, China, in 5000 BC. The casket is theorised to have emerged in the mid to late 19th century coinciding with the American Revolution. The difference between a coffin and a casket is shape. Coffins have six sides and are hexagonal. Caskets have four sides and are rectangular.

Prior to 1700, it was the law in England that the use of coffins was for societal elites. The average person was wrapped in a shroud and placed directly into the earth with the coffin only used to transport the body to the grave site. This practice is still conducted by many of Islamic faith). English-American colonies were no different; however, but by 1704, the law had changed and the use of coffins became common practice.²⁵

Although four-sided coffins existed during this time the term *caskets* had not been introduced. Up until the Civil War four-sided coffins existed in great number but it was the war that prompted the transition to the casket. Pre-Civil War coffins in America were very simple and exclusively made of wood (similar to the coffins used by the Jewish faith to this day). The war caused large-scale death which prompted a change in burial ritual. The name and form of the coffin changed distance the living from the matter death. "It's almost as if the coffin was too honest, too basic and unrefined. The change in name from coffin to casket reinforces this point, as 'casket' calls to mind a vessel for storing precious goods, a euphemism, yes but seemingly also a mark intended of respect. For Americans, the idea of a casket seemed a more appropriate term to honour their dead."²⁵

Coffins are commonly used to display the body preceding burial, after this time the body is placed directly into the ground, in a tomb, or is cremated. To show more respect for the dead, caskets have become more elaborate with the introduction of lining, ornament, and additional materials. This is done to reflect individual interest, passions, and history in an attempt to create the 'memory picture'. Many cultures, along with the Jewish and Islamic faiths, do not practice the beautification. The use of the coffin in this way is less resource dependent and uses minimal material, which is renewable and biodegradable.

Coffins have been used by other religious groups besides Christians as well. In the Islamic faith tradition, the coffin is not put into the ground, it is only used as a means to transport the body to its grave.²⁶ Because the coffin is only used for transport, one coffin can

be used multiple times, conserving resources. In the Jewish faith tradition, customs require that the coffin be simple in nature. These coffins are made of only untreated wood and frequently use wooden dowels instead of nails as fasteners. Jewish customs require the coffin to decompose so that the corpse is able reunite with the soil.²⁷

By observing the burial practices of Islam and Judaism it is clear that a coffin in its raw state is capable of being used in burial. Why then, continue to build upon it? To show respect the dead? To show someone cared? To prove they were loved? To beautify death? This outward need to honour the deceased in such a way is used as a means to comfort and the living. The American Civil War spurred this change but it was industrialization that propelled it. With the living no longer caring for the body of the deceased, efforts and emotions that were channelled into that time had to be redirected. It also serves as a means for the living to dispose of guilt or regrets. Fast-paced, modern life-styles could mean people feel guilt for not spending time with loved ones and this realization can happen after they are gone, prompting more extravagant funeral rituals to compensate, leading to the extravagant western funeral as it is known today.

CHAPTER 4: ALTERNATIVE BURIAL METHODS

In recent years, the negative environmental impacts of current western burial practices are being studied. This, coupled with rising prices of funeral services, has led to a rise in alternative burial methods rising in popularity. Such methods include natural burial, cremation, aquamation, and the experimental promession.

Natural Burial

Of all burial methods, natural burial is the simplest, oldest, and most historically used form of burial. Natural burial is the placement of the body into the earth in a way that it is allowed to decompose and naturally recycle (Figure 4). This can be done by placing the body directly into the ground, or housing it in a biodegradable shroud (like in Islamic burial) or coffin (like Jewish burial). Today, natural burial is the required burial means of the Jewish and Islamic faith (with the exception of corpses that are believed to be capable of spreading diseases which may be regulated by law).

Due to demand for more eco-friendly burial options, many have returned to using natural burial. There have been recent proposals for a new ritual to go along with natural burial. Italian designers Anna Citelli, and Raoul Bretzel created the *capsula mundi* project in hopes to change burial practices of the west and transform the grave yard as it is currently known. They heavily

emphasize that humans are a part of nature's cycle of transformation. This is a fact that transcends culture and religious tradition. This method presents a burial in a state that allows decomposition under a growing tree. The body is encapsulated in the foetal position in a seed or egg shaped biodegradable urn). Once the pod is buried a young tree is placed on top of the pod and as the pod and the body decompose

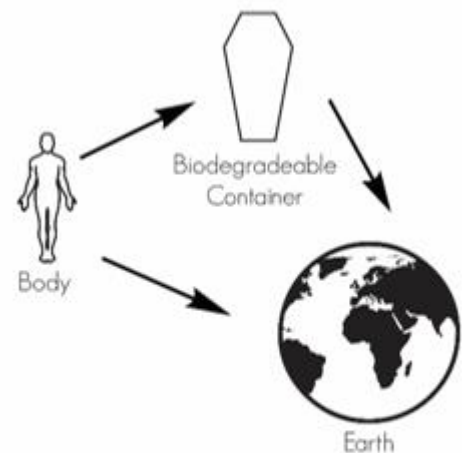


Figure 4. Natural Burial

they become nutrients for the tree. The burial pods which replaces coffins are made of starch plastic and seasonal plants such as potatoes and corn instead of wood. Trees take the place of gravestones and transform the graveyard into a sacred forest, which visitors can visit. Smaller *capsula mundi* pods are also used for ashes.²⁸

The two major problems with natural burial are 1) the possible spread of disease if the person died from a contagious disease (like with smallpox in 1918) and 2) the limited space to house corpses as they 8-12 years minimum to decompose. Many countries are already facing a shortage of space and are relying on policies of temporary burial, cremation, and or other means of corpse disposal.

Cremation

Cremation dates back approximately 17,000 years and has been used by numerous cultures throughout history. It is the process of body disposal through combustion. Although religions such as Islam and Judaism still frown upon or ban cremation; others such as Buddhism, Hinduism, and Jainism not only allow, but encourage the process. In the 7th century the rise of Christianity in Europe led to the decline of cremation as Christianity stems from Judaism and a dislike for cremation could have stemmed from that association. Historically, cremation was illegal in many European countries and colonies. The process was reintroduced in the 1870s because of new technologies and contact with eastern cultures that conducted the practice. In the early 20th century Protestant churches came to accept cremation as they believed that God can resurrect ashes just as he made dust to flesh. Other Christian denominations followed the practice, with the Roman Catholic Church holding out the longest but eventually lifting the ban in 1963, as it was recognized that cremation was practical and did not deny bodily resurrection.²⁹

Though the fundamental process of cremation has remained the same, modern cremation is different from its predecessor, open air cremation. Open air cremation on a pyre

is still used but very rarely. Modern cremation takes place in a closed furnace at a crematorium. The body is prepared, removing medical devices and recovering jewellery (if desired), then placed in a cremation container made of wood or other combustible material and moved to cremation chamber (also called retort, crematory, or cremator). In the chamber, a blaze producing 1400-2000F is started and the body is cremated over 1.5 to 2 hours. Once completely burned the chamber is cooled, a magnet is used to collect any left behind metals, any other remaining material is removed and placed in cremulator which turns the bone to ash and given to family (Figure 5).³⁰



Figure 5. Cremation

In recent years, there has been a focus on what could be done with the ashes and/or how they could be stored. Countries such as Brazil, China, Israel, and Japan have introduced high rise cemeteries for the purposes of housing ashes. The Bonhyang Company in South Korea has developed a process that condenses ashes to form blue-green, pink, or black beads which are kept by loved ones. Ashes can also be contained in bio urns (as mentioned previously). Many companies including *Capsula Mundi*, produce biodegradable urn (bio urns) which can be easily buried when loved ones are ready. Bio urns are often paired with young trees, seedlings or seeds so that they become nutrients for the young plant.

Currently cremation creates excess heat, emissions, and particulates during the process. Modern retorts are often automated/computerized and can be programmed to adjust temperature as needed. Modern retorts are large enough to fit one body and are lined with

high density, heavy-duty fib brick, and can reach temperatures of 2000F (1093C). To make the process more resource-efficient, many retorts are designed to use natural gas, propane, or diesel instead of coal and coke. These methods can achieve higher temperatures with less odour and smoke. Many retorts now have a second chamber where a second blaze is used to burn off any particles or dust in the air leaving the retort to reduce emissions, smoke, and odour. Some retorts also have a wet scrubber in the emissions stack that sprays mist of water to trap escaping particles.³⁰ Creative new uses for the by-products of cremation have been reported, for instance in Halmsted, Sweden (after being criticized for the pollutants produced by their crematorium) uses excess heat from the crematorium to help heat homes in surrounding communities.³¹

Aquamation

The process of aquamation goes by many names. The most common is resomation but it is also referred to as biocremation, flameless cremation, and water cremation. Aquamation is the process of body disposal using lye (potassium hydroxide), heat, and water. The process is based on alkaline hydrolysis, where lye, water, and heat break the body down into its chemical components, similar to how the body decomposes in the earth.³²

Alkaline hydrolysis refers to types of nucleophilic substitution reactions where the attacking nucleophile is a hydroxide ion. Nucleophilic substitution is a class of reactions in which electron rich nucleophiles selectively bond with others or a positively charged atom group to replace a leaving group. Nucleophiles are group of chemicals that donate an electron pair to form a chemical bond.³²

The process was first patented in 1888 by Amos Herbert Hobson as a method of converting animal carcasses into plant food. In 2007, the Scottish biochemist Sandy Sullivan resurrected the process and by manufacturing machines to carry out the process naming the process (and company) Resonation.³²

The resomation process is presented in Figure 6. The body is placed in a pressure vessel (the resomator/aquamator which is normally fully automated) that is filled with a mixture of water and lye. The machine then tilts up so that the body slides into the mixture. Once tilted, the mixture is heated to 320F (160C) at elevated pressure which prevents boiling. In 4 to 6 hours the body is broken down into its chemical elements. The peptides, amino acids, sugars, and salts combine to form a coffee coloured liquid that drains from the machine and can be discharged directly into the sewer, leaving the bone remains in the vessel. Because the process kills all bacteria of the corpse the liquid can also be simply filtered into earth. The bone left over is pure calcium phosphate unlike flame-based processes where the chemical elements are all mixed together. Once the bone is removed from the vessel it is placed in a cremulator, and the ashes are given to the family. The ashes can be casted or stored like those derived from cremation.³²

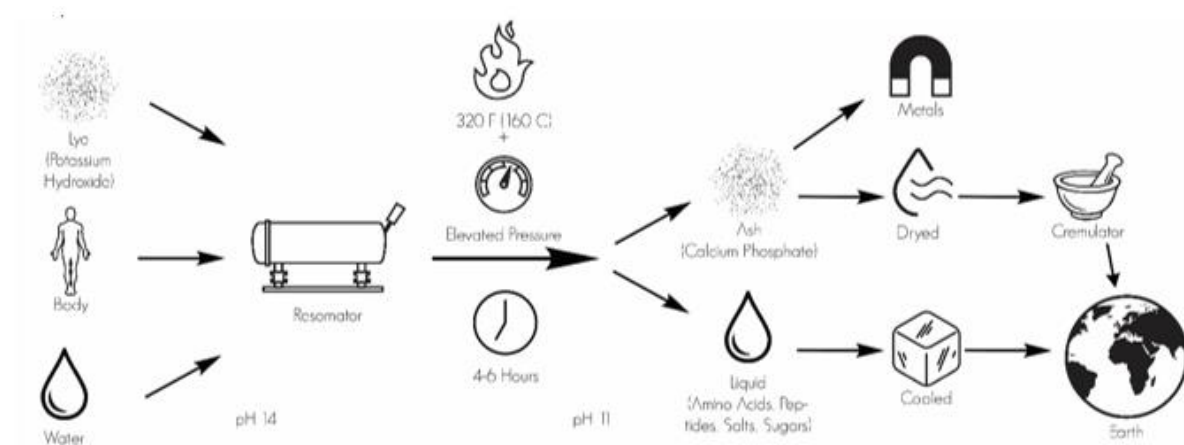


Figure 6. Aquamation

In comparison to flame-based cremation, aquamation requires only 90 KW-hr of energy, roughly a quarter of that used in cremation and produces less CO² and produces no mercury emissions. Because the process occurs at a lower temperature, less effort is required to cool the water used and more ashes are yielded. However, as there is lower energy

consumption and emission production, the process roughly 60-240 US gallons of water per 1000 lbs. This process is not widely used, as it can be expensive and has a negative connotation (there is a generally revulsion for the process). At the beginning of the process the body has a pH of 14 but drops to pH 11, giving of an odour of ammonia.³² Also, some find the idea of the body being flushed down the drain when the liquids are disposed of unpleasant. In addition, the process is seen as disrespectful to the body and receives push back from the Roman Catholic church which allows cremation or embalming which can also be seen as unpleasant.³³

Promession

The concept of promession was developed by Swedish biologist, Susanne Wiigh-Mäsak who pondered the idea for 20 years before going public in 1997 with her company, Promessa.³⁴

Like cremation and aquamation, the process is used to decrease the volume and mass of the corpse. The process the corpse is cooled to 0F (-18C). It is then frozen to -321F (-196C) using liquid nitrogen, which leaves the body brittle. Once in this state, the corpse is gently vibrated, reducing it to powder in a matter of minutes. Metals held by the body are not turned to powder and are separated the powder after it has been freeze dried. Following the process the powder is placed in bio urn and buried. In this state, it takes 6-18 months to decay.³⁴

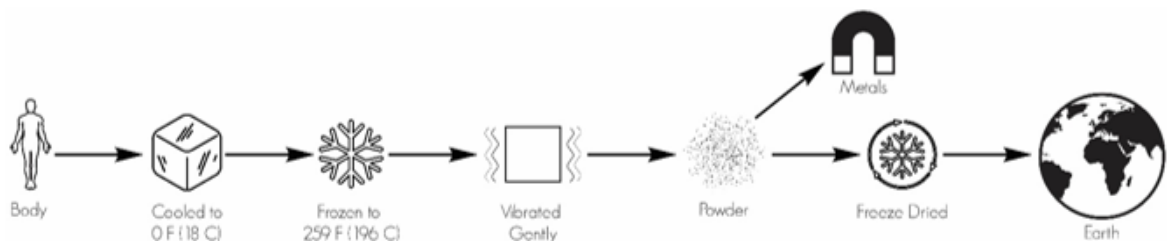


Figure 7. Promession

Promession still remains in a theoretical/testing phase and is unavailable as a means of corpse disposal to the general public. However, the potential of the process is promising. The process does not seem to produce direct emissions, excess heat or waste products, and the resulting powder takes little time (a maximum of 18 months) to decay.³⁴

When comparing alternative burial methods, it is clear that the processes of cremation, aquamation, and promession have the ability to drastically shrink graveyards (i.e. land use). Although natural burial is the simplest and easiest burial method, it still can be land-intensive. To prevent this in some places, corpses are allowed to be temporarily buried and after an allotted time, are cremated. In other cases cremation is mandatory from the beginning. Cremation allows a wide range of possibilities than the an intact corpse; however, cremation can create pollutants, emissions, and excess heat as a part of the process. Aquamation produces more ashes than cremation without direct emissions, pollutants, and heat; however, requires a high water use and still has an unpleasant connotation. Promession is promising; however, no real-world tests have been conducted and the downsides are currently unknown.

In addition to alternative burial methods, many countries have utilized regulation and architecture as a means to decrease the land required to house the dead and the negative environmental impacts that result from the Western burial practices. Architecture serves as a backdrop for burial practices. It serves the needs as a place for the body disposal process, pre-burial and burial ritual, and of memoriam. To further study how architecture lends hand to burial rituals, working at the intersection of culture, religion, and ecology, a proposal has been developed for a theoretical burial practice/ ritual and an aquatorium to compliment it for the Bahamas.

CHAPTER 5: INTERLUDE- THOUGHTS OF LIFE AND DEATH

Bound together death and burial practices have remained in the reoccurring sequence of the latter being a product of the former for eternity and will continue to do so for eons to come. In this paper burial is addressed but not its predecessor, death. The Oxford Dictionary defines death as the permanent ending of vital processes in a cell or tissue. However, this ending only marks an earthly death. The purpose of this interlude is to express an understanding of death beyond an earthly end. This understanding of death is greatly influenced by faith.

The Creator and the Creation

In the beginning, God created heaven and the earth, but the earth was without form and void. As the Spirit of God moved across the waters but the face of the deep was darkness. So God said 'let there be light' and there was light; 'let there be firmament in the midst of the water', and there was firmament; let there be dry land, and it was so. 'From the land let there be flora', and there was flora. 'In the seas and on the land let there be living creatures', and so it was. And then God said 'let us make man in our image, after our likeness', and he formed man out of the dust of the earth and breathed life into him, making man a living soul. (Gen. 1:1-27)

Man's Death, the Broken Covenant

After creation while still residing in the Garden of Eden, Adam and Eve were given the Edenic Covenant. The covenant was comprised of seven conditions of which the most important was, not eating from the Tree of Knowledge of Good and Evil, and that disobedience would be punished by death.² (Gen. 1:28-30; 2:15-17)

After an undetermined period of time a serpent came to Eve and convinced her that it was permissible to eat from the Tree of the Knowledge of Good and Evil, saying that she would not die and the only reason that God wanted them to eat from the tree was that their

eyes would be opened and they would become like God, knowing good and evil. Persuaded by the serpent, Eve took fruit, ate it, and gave some to Adam. When they did their eyes were opened. Because of their disobedience Adam and Eve were removed from the Garden of Eden. (Gen 3:1-6, 22-24)

The punishment for disobedience and eating from the tree according to the covenant was death but Adam and Eve did not physically die. While man resided in the Garden they remained pure for they knew only joy and paradise. By eating the fruit Adam and Eve's eyes become open to good and evil meaning that they now knew more than joy alone and it is in this knowledge that man's soul was able to become corrupted.

After being removed from the Garden of Eden Adam and Eve had three sons, Cain, Abel and later Seth. Cain was a tiller of the land and Abel was a keeper of sheep. One day Cain brought fruit from the land to God and Abel brought the firstling of his flock. The Lord showed respect to Abel and to his offering but to Cain and his offering the Lord showed no respect. Because of this Cain became angry. Responding to Cain's anger the Lord asked him *'⁶Why art thou wroth? And why is thy countenance fell? ⁷If thou doest well, shalt thou not be accepted? And if thou doest not well, sin lieth at the door. And unto thee shall be his desire, and thou shalt rule over him.'* It came to pass that that Cain would talk to his younger brother and when in the field slayed him. As punishment for his actions Cain had to leave the presence of the Lord. (Gen 4:1-14)

Although it was Abel that was slain, it was his brother Cain that died for he was separated from the Lord. When God said that eating from the Tree of the Knowledge of Good and Evil would cause man to die this what I believe the Lord meant. By eating the fruit, man's soul became susceptible to corruption, and through the corruption of the soul, it is separated from the source.

The Body and the Soul

When it said people are made in the likeness of God this is not meant as physical likeness: but rather in the likeness of the Holy Trinity; the Father, the Son, and the Holy Ghost; three coeternal entities but one Being. In man it can be seen a similar coexistence as man can be described as mind, body and soul. The Creator and the creation both in three parts, the Father, God, the mind, the conscious; the Son, Jesus, the body; and the Holy Ghost, the soul.

In the Christian faith it is acknowledged that the soul and the body are separate entities, the soul created of the source, God, and the body an earthly shell formed from dust to contain the soul. It is believed that the soul is innately pure because it comes from God but because of the broken Edenic covenant can be corrupted by the body. Once earthly death occurs the soul leaves the body but if corrupted it cannot return the source.

Corruption of the Soul

Throughout the bible the Lord forms eight covenants with man. The covenants contain a combination of rules by which man was/is to live, God's promises to man if they did what was right in the sight of the Lord and the curses that would be cast upon should they disobey the Lord. Of all the laws given to man God warns of a list of sins that are capable of corrupting the soul and separating it from God. The first of these sins are found in the books of Proverbs, stating:

'¹⁶There are six thing the Lord hates, seven that are detestable to him: ¹⁷haughty eyes [arrogance/disdainfully proud], a lying tongue, hands that shed innocent blood, ¹⁸a heart that devises wicked schemes, feet that are quick to rush into evil, ¹⁹a false witness who pours out lies and a person who stirs up conflict in the community.' (Prov. 6:16-19)

The remaining are found in the Book of Galatians stating:

‘¹⁹ The acts of the flesh are obvious: sexual immorality, impurity and debauchery; ²⁰ idolatry and witchcraft; hatred, discord, jealousy, fits of rage, selfish ambition, dissensions, factions ²¹ and envy; drunkenness, orgies, and the like. I warn you, as I did before, those who live like this will not inherit the kingdom of God.’ (Gal. 5.19-21)

These sins go against the roots of Christianity; love for God, love for our fellow man (as they carry God’s essence), and love for our bodies (because they carry God’s essence). Although these sins are forgiven by the Lord they have the possibility of leading to the one sin that cannot be forgiven, complete rejection of God’s grace.

The Resurrection

For the forgiveness of sins, from the Virgin Mary, God’s Son Jesus was born on earth. His birth and life are crucial to the Christian faith but the foundations of the religion are based on his death and resurrection.

On what is now known as Good Friday Jesus was crucified. After his death he was taken to the tomb of Joseph of Arimathea, where he was buried. When the Sabbath had ended Mary Magdalene, Mary the mother of James (mother of Jesus and Joses), and Salome went to visit Jesus’ tomb to anoint the body but upon entering they found only a young man and were frightened. The young man said to them, ‘Do not be afraid. Do you seek Jesus of Nazareth who was crucified? He is not here. He is risen.’ Following this on the first day of the week Jesus visited Mary Magdalene, then his eleven disciples. After having spoken to them he was received into heaven. (Mark 16) Jesus’ resurrection is the proof of God’s saving grace and confirms his identity as the son of God whose body was sacrificed for the forgiveness of our sins allowing man to atone for our sins so that man may never die.

The Book of Life and the World to Come

The book of revelations speaks of the Book of Life which contains the name of all who will be permitted into heaven because they lived righteously according to the Lord. Those whose souls have been corrupted will be blotted out by the Lamb (Jesus), and are separated from the source resulting in true death. Those whose names are written in the book after the second coming of Jesus (Final Judgment) will be granted an eternal life in heaven. (Rev. 20:11-15)

Contradictions

The Bahamas is predominantly Christian with 98.9% of the population claiming the faith. Despite this, our burial practice does not reflect our religious beliefs, because we like many other countries blindly imitated the western burial process and ritual amongst other things from the USA. Although the Christian faith has no set rules for burial, the religions of Abraham (Christianity, Islam, and Judaism) all bury our dead for a very similar reason. All three religions share the same creation story with man being made from the earth and given life by breathe of God and believe that God's essence resides with in the earth. Upon death the body is buried so that it may be reunited with its source. It is because of this the Islamic and Jewish faiths mandate that the body be buried in a manner that allow it to be naturally recycled into the earth, which is why they discourage the use of burial vaults, non-degradable coffins and the embalming process, which hinder the decomposition of the body along with going against other beliefs.

If the Christian faith shares similar beliefs to its sibling religions why then, do we allow burial vaults and coffins that separate the body from the very earth that we are trying to return the body to? If we believe that God's essence resides with in the earth why do inject the body with known hazardous chemicals before returning it, does that not seem disrespectful?

It is also acknowledged that the body and the soul are separate entities with the body being an earthly vessel for the soul. Upon physical death the body and the soul separate and the body is no longer important. Despite our acknowledgement of this after physical death people still put strong emphasis on the preservation and presentation of the body; however, they may not be a need.

CHAPTER 6: A NEW BURIAL PRACTICE FOR THE BAHAMAS

Body Disposal

The use of burial vaults, elaborate coffins, and the embalming process are environmentally detrimental, resource intensive, uneconomical, have no proven benefit, and the same goal can be easily accomplished by other means. For a more sustainable burial practice there are aspects of the funeral must be let go. In doing so, new burial practices must take their place. Without the embalming process, the body must be disposed of quickly similar to the Islam and Jewish faith where the body is normally buried 24 hours after death. Natural burial would be the easiest alternative in many cases; however around 80% of the Bahamas is 0 to 3 ft. above sea level which makes the process more difficult. Existing grave yards are mostly located on higher ground to avoid high water tables. With projected sea level rise, high land will become more valuable and it would not be justifiable to allocate the remaining highland for the dead. Even if low land were to be used for grave yards, there is still risk of eventually running out of space.

Therefore, the best disposal method would be one that could drastically shrink the land required for the dead; leaving the choices of aquamation, cremation, or promession. Of these three aquamation shows the promise for reasons mentioned earlier and the Bahamas has an adequate water source to meet the demands of the process. However, the church criticizes this process and hold a lot of power due to 98% of the country identifying as Christian. Aquamation still has the potential to reference the Christian faith and other religions of Abraham.

Architecture of the Dead

*“If we were to come across a mound in the woods, six foot long by three foot wide, with the soil piled up in a pyramid, a sombre mood would come over us and a voice inside us would say, “There is someone buried here.” That is architecture.”*³⁵

-Adolf Loos

To Loos, architecture transcends the built environment, and therefore is not merely buildings. Architecture is a place. And what is place but a mark? In a physical sense, a place marks the land but beyond that the mark creates a stamp on time. This stamp lets us know that something proceeded us. Through architecture we domesticate the timelessness of an eternal nature bringing it to human scale.

For the sake of this research architecture is not restricted to the built environment but takes three forms. The first being the Aquatorium, the place of body disposal, the second the Books of Azrael, the place of record, and lastly the Island, the place of burial and new life.

The Aquatorium

The Aquatorium will be located near the intersection of East St. and Bay St. in downtown Nassau on the island of New Providence. Roughly 66% of the country's population live on the island of New Providence and Bay St. is one of the islands major roads with many of the population using it on a daily basis. The location has numerous advantages; the first of which is the aquatorium will be placed in public view. In doing so people would no longer be able to ignore the subject of death, which is the root of most (if not all) issues of



western burial practice today. The location is in close proximity to the islands hospitals and morgues, which are both located on Shirley Street, and access to the ocean.

Figure 8. The Site (Coast)

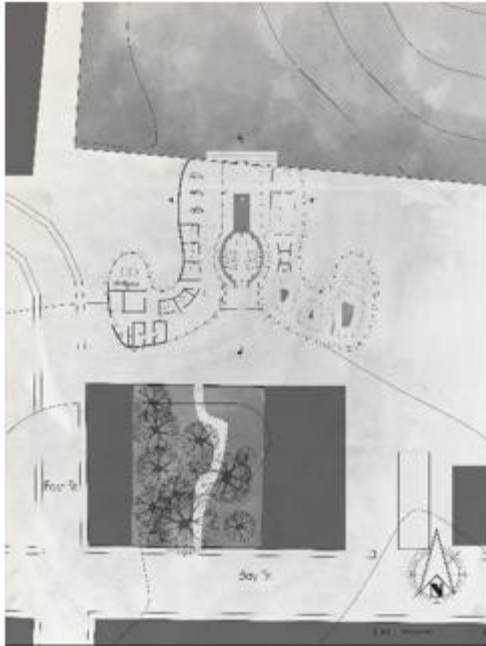


Figure 9: The Site (Aerial View)

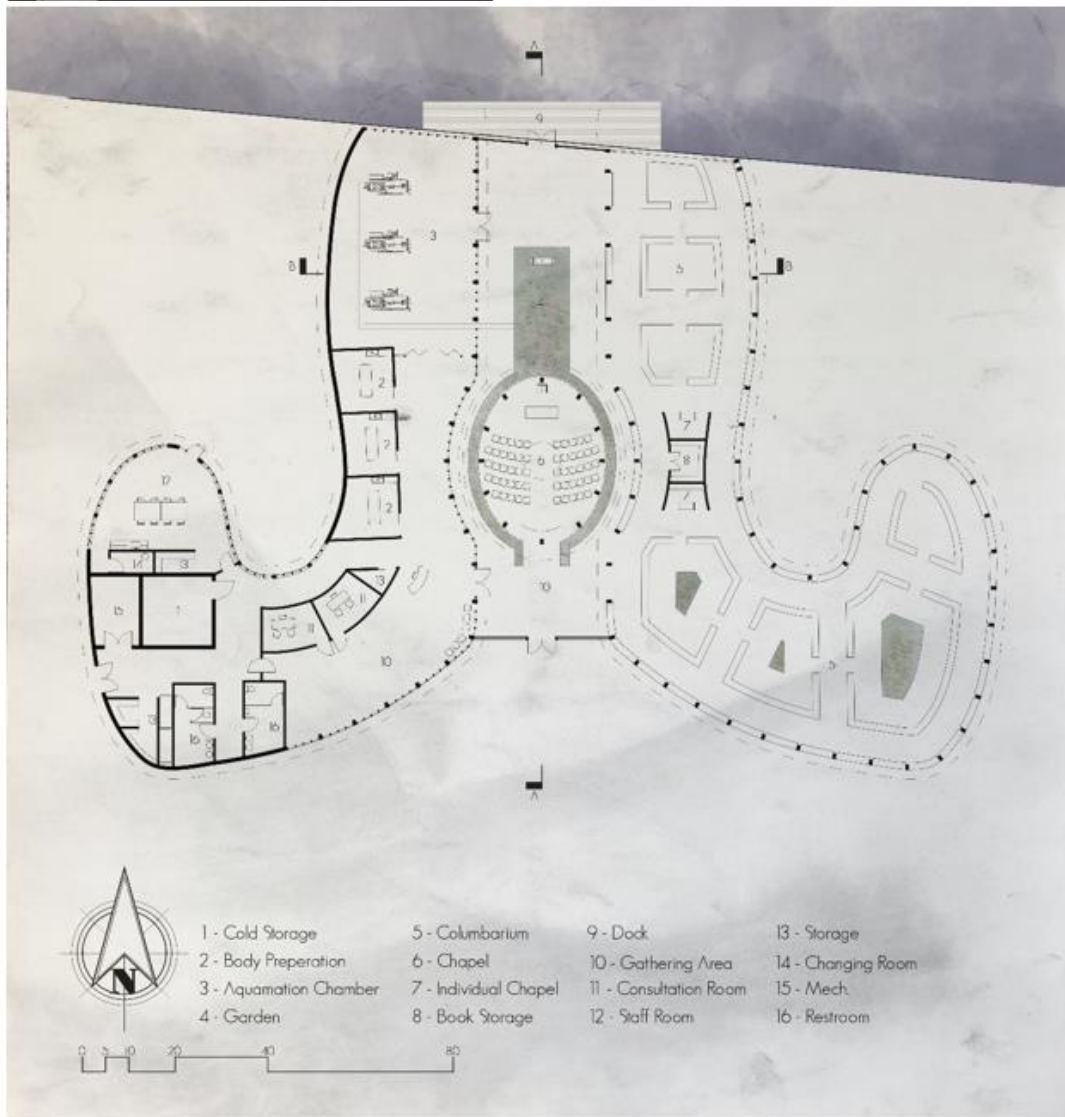


Figure 10. The Aquatorium, the Land of the Living and the Dead

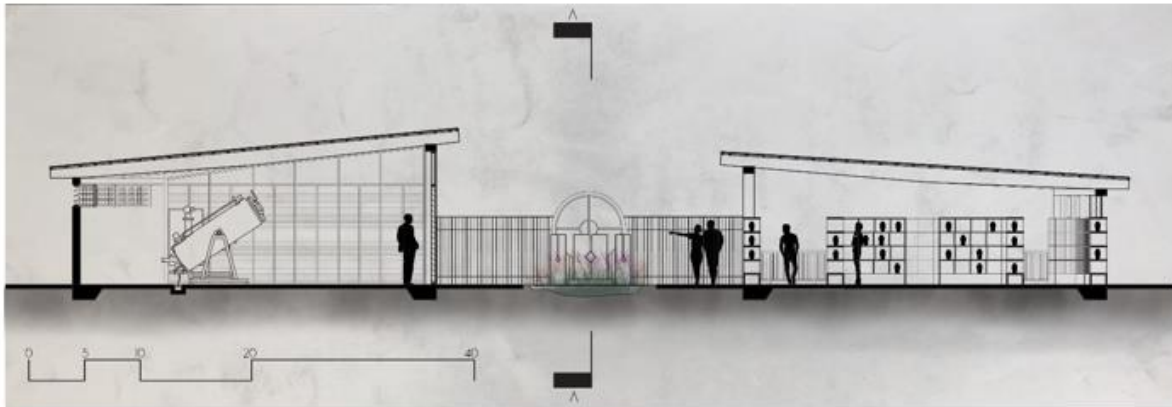


Figure 11. The Aquatorium

The aquatorium would be composed of two separate zones, the land of living (to the west) and the land of the dead (to the east). The building makes use of local building techniques, practices and materials with a combination of CMU (concrete masonry unit) structural walls, wooden posts, wood stud walls, timber-framed roofs, and louvered windows which are very common and widely used throughout the country.

The land of the living would contain spaces dedicated to physical corpse disposal and ceremony; essentially the more active spaces. These spaces would include consultation rooms, cold storage, office space, chapel, individual chapels, aquamation chamber, and support rooms.

The land of the dead would be a space dedicated to partial burial and temporary housing for ashes, and would be split into three spaces. The first of which would be a library containing the Books of Azrael. The second space would be the garden which would serve to filter by-products from the aquamation process and recycle the nutrients into the earth. The ashes created by the process will be stored temporarily in the third space, the columbarium. The purpose of the columbarium would be to house ashes until final burial for mourners who require a place to visit for mourning purposes. The ashes will only be housed for a maximum

of five years and will not act as final resting place. Once loved ones are ready to say final good byes to the physical remains, preparation would begin for final burial.

The Books of Azrael

Although Azrael is not recognized in the Christian faith, in Islamic and some Jewish traditions he is recognized as the Angel of Death. A popular Islamic narrative states that when God created Adam, he sent the angels to collect the dust from which Adam was to be made. Azrael was the only angel to return and thus was made the Angel of life and death. Both religions state that he carried a scroll that concerned the fate of all mortals and is responsible for taking souls from their body. He does not have control over death, but follows directions from God.

The Books of Azrael record the name and date of every corpse/ soul that moved through the Aquatorium proceeding their return to the earth. These books do not give the final resting place of the person but instead act along with the rest of the land of the dead as an empty tomb reflecting Christ's tomb were it acted not as his final resting place but proof of his resurrection the foundation of the Christian faith.



Figure 12. Book of Azrael Cover



Figure 13. Book of Azrael Pages

Burial by Sea

The islands of the Bahamas (unlike the majority the West Indies) are made of sedimentary rock (mostly limestone). Sedimentary rock is made by the processes of sedimentation, compaction, and cementation. As sediment falls to the bottom of a body of water it accumulates and as new sediment falls, the old is compressed by the weight of the new forming layers of sediment. After being compressed to a certain point, salt crystals act as glue and bind the layers together (cementation) and stone is formed. Limestone is made through the sedimentation of mostly calcium carbonate, which is the building block of many marine organism skeletons and shells. However, limestone can also be made from calcium phosphate, which is the main makeup of the human skeleton and by product of aquamation. Once calcium phosphate is in the ocean in it can become a nucleus which layers of minerals deposit forming spherical grains called ooids, can be the mineral that deposits on a nucleus or can remain sediment that collects at the bottom. Ooids only form in shallow water (26'/8m below the surface), as the process requires wave agitation and tidal movement. After ooids are formed they can be cemented together forming oolite also known as oolic limestone.³⁶

The Bahamas was originally rediscovered by the Spanish who named the group of islands Bajamar meaning low tide or low water. Because of the country's shallow waters a large portion of the limestone that forms is oolic lime stone. Given that the ash produced by the aquamation process is purely calcium phosphate and the countries geography, burial by sea grants a unique opportunity.



Figure 14. Canoes on Water

Small unsealed wooden canoes would be used to release the ashes to the ocean (Figure 14). The canoe would replace the coffin or urn. It would allow loved ones to add a unique aspect to the burial but would allow for a basic level burial. Despite wealth and status during life one would still be buried using a small wooden canoe. Historically sea vessels and the ocean have been an integral part of the country, from piracy to fishing and tourism. From the ocean, the country was born, the people thrive, and the people live. It seems only fitting that it would be a grave for its people.

Once the ashes are released to the ocean, the canoe would sink, and over millions of years through the processes of sedimentation, accumulation, compaction and cementation the ashes of the dead will become limestone. As this limestone builds layer by layer new land will rise from the ocean, and upon it new life will grow. The canoes, just like many sunken ships before them would become chassis for coral to grow, giving both it and the ashes it held a second life.



Figure 15. Island Made of Limestone Over Centuries of Ashes Released to Ocean

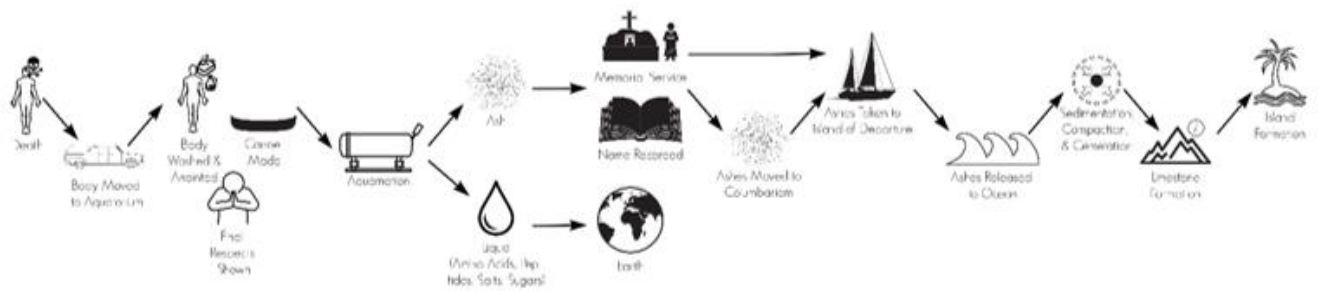


Figure 16. Proposed Process

Environmental laws state ashes cannot be released within three nautical miles of inhabited land, so the ashes could not be released from the aquatorium's grounds. An uninhabited island, The Island of Release (Figure 17) located roughly five nautical miles east of New Providence would be used for this purpose.

The Island of Departure would be marked with a blank tombstone and series of six wooden posts forming an arch that opens to the ocean. This implied boundary would be the place of final burial, where the ashes would be released to the ocean and eventually take new form. "No human words need be inscribed on the tombstone. A crude grave post is sufficient to indicate this *mortal hic*."³⁷



Figure 17. Island of Release

CHAPTER 7. CONCLUSION – THE ETERNAL CYCLE: OUROBOROS



Figure 18. Ouroboros

“To live is to die, and to die is to be born again, and when the snake bites its own tail in the centre you will create yourself”³⁸

-El Santo

To be alive is just another form of being dead. “All solid bodies in the universe is a species of what is dead... it’s heavy elements were formed by the death of stars... whatever biomass it receives after the extinction of life becomes part of the planet’s receiving matter-matter from which life... in turn emerges.”¹² Humans are a part of the earth’s cycle of eternal transformation. From the earth, bodies were made and to the earth they must return. Relative

to the earth people's time is short but an earthly death is not the end, it is the beginning of something else.

The core purpose of burial, as seen across many historical and religious groups, is to continue this cycle. The body is returned to the earth so that new life can begin. Somewhere along the way, many of the modern West have forgotten this. Death is no longer seen a part of life but instead the opposite, and so people distance themselves from the topic. Due to this separation, the burial practice of the west changed and is no longer centred on continuing the cycle but instead grounds itself on satisfying the living. Myths emerged based around the idea of the 'memory image' to beautify death and were openly adopted without second thought or question. With the adoption of the memory image came the process of embalming, the burial vault, and more elaborate coffins or caskets. Because people did not want to think about the topic, they do not observe the repercussions of the burial practice. It is resource intensive, environmentally harmful, the components serve no tested benefit to mourning, and it hinders the body's ability to be recycled into the earth, the fundamental reason for burial.

To be human means to be of the humus, of the earth. It would seem that many forget this. People bury so that the elements can be reunited with the earth from which they came. Perhaps the rise of the modern Western traditional burial speaks to a larger problem; man's separation from the earth. By choosing, to be buried using traditional Western methods, people remove their bodies from the earth's cycle of transformation (Figure 19). Even though the body serves no purpose after death, in people's egocentrism they still choose to lock it in a box and remain separated from the earth. Man has, and will always be, a part of nature; human's will never be separate or above it, no matter how people try to delude themselves. By believing people are separate, people choose to ignore a whole dimension of their being; a dimension of themselves that links us to all life.

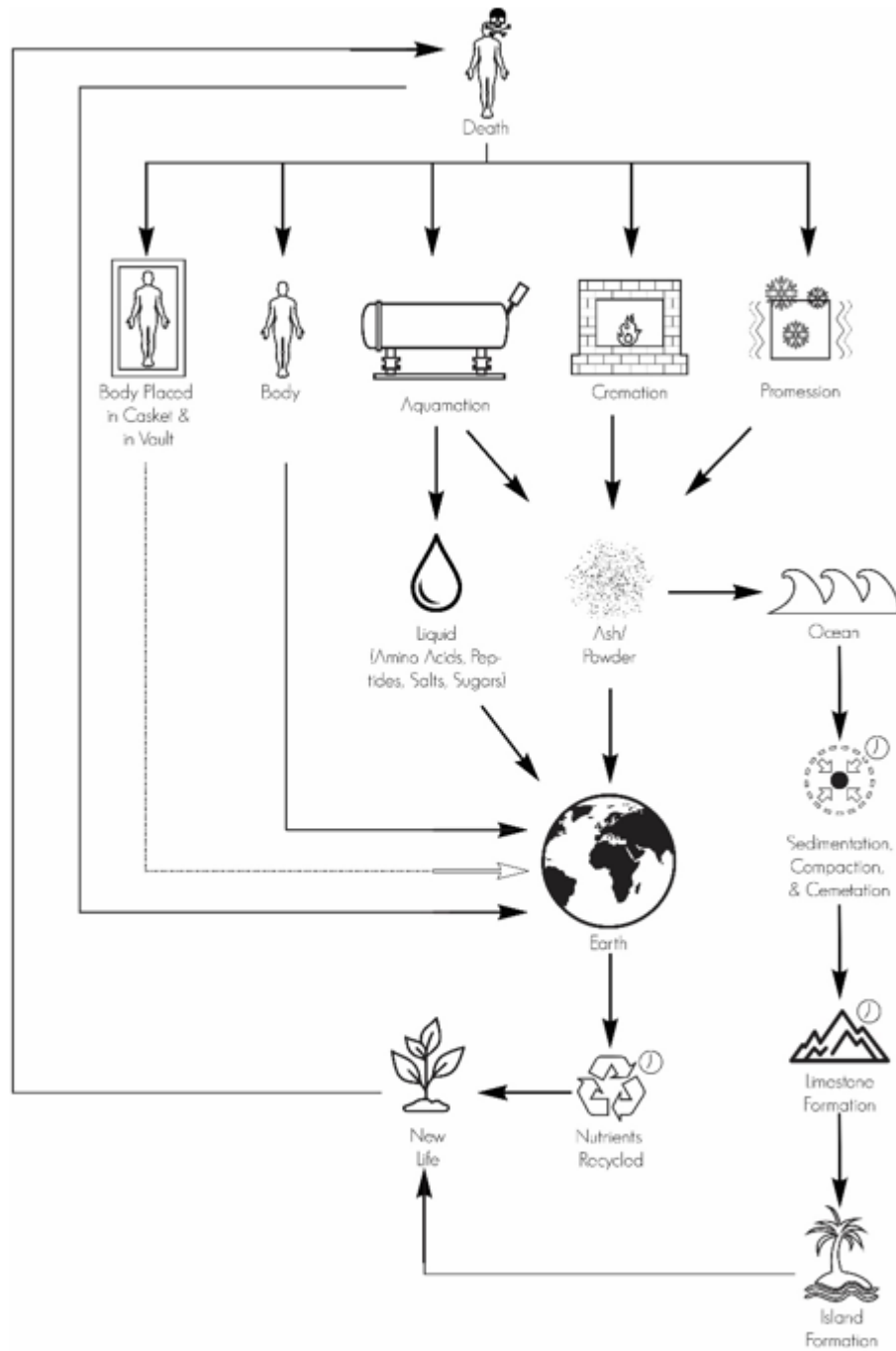


Figure 19: Death to Life

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